



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

*[Handwritten Signature]*

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/565,919  | 10/23/2006  | Karl Schanz          | 27392/27910         | 7639             |
| 4743  | 7590        | 02/04/2008           | EXAMINER            |                  |
| MARSHALL, GERSTEIN & BORUN LLP<br>233 S. WACKER DRIVE, SUITE 6300<br>SEARS TOWER<br>CHICAGO, IL 60606 |             |                      | RUSH, ERIC          |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 2624  |             |                      |                     |                  |
| MAIL DATE   |             | DELIVERY MODE        |                     |                  |
| 02/04/2008  |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                       |                  |
|------------------------------|-----------------------|------------------|
| <b>Office Action Summary</b> | Application No.       | Applicant(s)     |
|                              | 10/565,919            | SCHANZ, KARL     |
|                              | Examiner<br>Eric Rush | Art Unit<br>2624 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 January 2006.
- 2a) This action is FINAL.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-12 and 16-22 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-12 and 16-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 January 2006 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 25 January 2006.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because *the unlabeled rectangular box(es) shown in the drawings should be provided with descriptive text labels*. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1 and 11 are rejected on the ground of nonstatutory obviousness-type

double patenting as being unpatentable over claims 28 and 1, respectively, of U.S. Patent No. 6,810,138. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims differ in that the independent claims of the instant application recite an additional limitation of "determining a further process to which the observed substrate provided with the actual pattern is to be delivered", But it would have been obvious to one of ordinary skill in the art at the time of the invention to reject the undesirable substrates and continue processing acceptable substrates, i.e. determining a further process to which the observed provided with the actual pattern is to be delivered.

4. Claims 2 – 10, 12, and 16 - 22 are also rejected on the ground on nonstatutory obviousness-type double patenting as being dependent upon a rejected base claim, but would be withdrawn from the rejection if their base claims overcome the rejection by the timely filing of a terminal disclaimer.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 3, 6—7, 11 – 12 and 16 - 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigeyama et al. U.S. Patent No. 5,450,204.

- With regards to claims 1 & 11, Shigeyama et al. teach a method and arrangement for the testing of substrates provided with a predetermined pattern, comprising an opto-electronic arrangement for detecting an actual pattern applied to the substrate by a printing or structuring process, (Shigeyama et al., Column 5 Lines 22 - 27) a comparator for comparing the optically detected actual pattern with a desired pattern and in dependence upon the comparison and taking into account permissible tolerances, (Shigeyama et al., Column 6 Line 59 – Column 7 Line 14) determining a further process to which the observed substrate provided

with the actual pattern is to be delivered, (Shigeyama et al., Column 7 Lines 19 – 27) a converter for converting the pattern detected by the opto-electronic arrangement into an actual data set in the form of digital data, (Shigeyama et al., Column 7 Lines 7 - 14) and a formatter to format a desired data set from control data for the application of the pattern onto the substrates, (Shigeyama et al., Column 7 Lines 7 - 14) wherein the comparator carrying out the desired data set and the actual data set datawise with one another taking into account permissible tolerances. (Shigeyama et al., Column 6 Line 59 – Column 7 Line 14)

- With regards to claims 2 & 12, Shigeyama et al. teach the method and arrangement according to claims 1 & 11, comprising applying the pattern onto the substrates by a process employing a correspondingly constituted template, (Shigeyama et al., Column 3 Lines 29 - 42) and formatting the desired data set from the control data employed for producing the template. (Shigeyama et al., Column 7 Lines 7 - 14)
  
- With regards to claim 3, Shigeyama et al. teach the method according to claim 1, comprising testing selected sections of the desired pattern. (Shigeyama et al., Column 6 Line 59 – Column 7 Line 3)

- With regards to claims 6 & 16, Shigeyama et al. teach the method and arrangement according to claims 1 & 11, respectively, comprising effecting the optical detection pixel-wise by means of a digital camera. (Shigeyama et al., Column 3 Lines 29 – 40, Column 5 Lines 28 - 40)
  
- With regards to claims 7 & 17, Shigeyama et al. teach the method and arrangement according to claims 6 and 16, respectively, comprising effecting relative movement between the digital camera and the substrate carrying the actual pattern for optical detection. (Shigeyama et al., Column 5 Lines 28 – 55, the printed circuit board moves with respect to the camera, i.e. relative movement)

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 8 - 9, and 18 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeyama et al. U.S. Patent No. 5,450,204 as applied to claims 7, and 17 above, and further in view of Kvamme et al. U.S. Patent No. 6,636,301.

- With regards to claims 8 & 18, Shigeyama et al. teach the method and arrangement according to claims 7 & 17, respectively. Shigeyama et al. fail to teach wherein the digital camera is a linear camera one pixel wide, the length of which corresponds to one linear dimension of the region of the actual pattern on the substrate to be tested, and comprising effecting the relative movement with a step size of one pixel perpendicularly to the one linear dimension. Kvamme et al. teach wherein the digital camera is a linear camera one pixel wide, the length of which corresponds to one linear dimension of the region of the actual pattern on the substrate to be tested, (Kvamme et al., Column 5 Lines 60 – 67, Column 13 Lines 1 - 24) and comprising effecting the relative movement with a step size of one pixel perpendicularly to the one linear dimension. (Kvamme et al., Column 13 Lines 1 - 24) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Kvamme et al. This modification would have been

prompted in order to image the entire surface for inspection with a high degree of detail and accuracy.

- With regards to claims 9 & 19, Shigeyama et al. in view of Kvammet et al. teach the method and arrangement according to claims 8 & 18, respectively. Shigeyama et al. fail to teach wherein the linear camera comprises linear sub-cameras arranged in a staggered manner. Kvamme et al. teach wherein the linear camera comprises linear sub-cameras arranged in a staggered manner. (Kvamme et al., Column 4 Line 53 – Column 5 Line 31)

10. Claims 4 – 5, 10, and 20 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeyama et al. U.S. Patent No. 5,450,204 as applied to claims 1, 2, and 11 above, and further in view of Gerber et al. U.S. Patent No. 5,608,453.

- With regards to claim 4, Shigeyama et al. teach the method according to claim 1. Shigeyama et al. fail to teach a method comprising associating different tolerance data subsets with various sections of the desired pattern. Gerber et al. teach the method comprising associating different tolerance data subsets with various sections of the desired pattern. (Gerber et al., Column 6 Lines 20 – 30 and Lines 41 - 63) It would have been obvious to one of ordinary skill in the art at the time of the invention

to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted because some circuitry requires more exacting precision than other circuit components. (Gerber et al., Column9 Lines 29 - 46)

- With regards to claim 5, Shigeyama et al. teach the method according to claim 1. Shigeyama et al. fail to teach a method comprising carrying out data processing by editing the respective data sets with regard to the sections to be compared. Gerber et al. teach the method comprising carrying out data processing by editing the respective data sets with regard to the sections to be compared. (Gerber et al., Column 6 Lines 20 – 30 and Lines 41 – 63, Column 8 Lines 4 – 13, and Column 9 Lines 19 – 46) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted because some circuitry requires more exacting precision than other circuit components. (Gerber et al., Column9 Lines 29 - 46)
  
- With regards to claims 10 and 20, Shigeyama et al. teach the method and arrangement according to claims 1 & 11, respectively. Shigeyama et al. fail to teach wherein the substrate, on which the actual pattern to be tested

is applied, itself already carries at least one other patterns and comprising constituting or carrying out the optical detection so that it discriminates the actual pattern to be tested with respect to the other pattern and the substrate. Gerber et al. teach wherein the substrate, on which the actual pattern to be tested, is applied, itself already carries at least one other patterns (Gerber et al., Column 5 Lines 52 – 67 and Column 6 Lines 31 – 67, the features described in Column 5 Lines 60 – 61 are the plurality of patterns which are inspected, i.e. tested) and comprising constituting or carrying out the optical detection so that it discriminates the actual pattern to be tested with respect to the other pattern and the substrate. (Gerber et al., Column 7 Line 34 – Column 8 Line 26) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted because some circuit elements require more exacting precision than other circuit components. (Gerber et al., Column 9 Lines 29 - 46)

- With regards to claim 21, Shigeyama et al. teach the method according to claim 2. Shigeyama et al. fail to teach a method comprising testing the template for faults arising in the course of use. Gerber et al. teach the method comprising testing the template for faults arising in the course of use. (Gerber et al., Column 1 Lines 19 – 40, Column 6 Lines 20 – 30, the

circuits are inspected for defects that may render a board useless within the course of use of the circuit. The features used have different acceptable tolerances which relate to templates for inspection) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted in order to allow for acceptable variations in tolerances that would permit the circuits functionality to still be realized even if the circuit is not perfect.

- With regards to claim 22, Shigeyama et al. in view of Gerber et al. teach the method according to claim 4. Shigeyama et al. fail to teach a method comprising carrying out data processing by editing the respective data sets with regard to the associated tolerances. Gerber et al. teach the method comprising carrying out data processing by editing the respective data sets with regard to the associated tolerances. (Gerber et al., Column 6 Lines 20 – 30 and Lines 41 – 63, Column 8 Lines 4 – 13, and Column 9 Lines 19 - 46)

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Aspir et al. U.S. Patent No. 6,795,186; which is directed to an adaptive tolerance reference inspection system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Rush whose telephone number is (571) 270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ER

JINGGE WU  
SUPERVISORY PATENT EXAMINER